(B) AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all previous versions of the claims in this application.

[c1]   (Original) A method for processing seismic data, comprising:

prestack depth migrating the seismic data to generate common image gathers using an initial velocity-depth model;

selecting at least one horizon in the migrated seismic data;

performing residual migration velocity analysis in the depth-offset domain at the least one selected horizon; and

updating the velocity-depth model based on the residual migration velocity analysis.

[c2]   (Original) The method of claim 1 wherein the prestack depth migration comprises Kirchhoff integral depth migration.

[c3]   (Original) The method of claim 1 wherein the residual migration velocity analysis comprises:

applying a perturbation to an initial value of slowness used in the migration;

applying a residual moveout in a common image gather;

determining flatness in a common image gather at a selected horizon; and

repeating applying the perturbation, applying the residual moveout and the determining the flatness until a selected range of perturbation is covered.

[c4]   (Original) The method as defined in claim 3 wherein the determining the flatness comprises determining a semblance between traces in the common image gather, wherein a maximum semblance corresponds to a maximum flatness.

[c5]   (Original) The method of claim 4 wherein the updating the velocity-depth model comprises replacing migration velocities with velocities obtained from the determining semblance of the common image gather and updating depth using the velocities obtained from the determining semblance.

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[c6]   (Original) The method of claim 1 further comprising repeating the residual migration velocity analysis in the depth-offset domain on a deeper horizon than the at least one selected horizon based on the updated velocity depth model, and repeating the updating the velocity-depth model based on the repeated residual analysis

[c7] to **[c12]** Canceled

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